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NEOTYPIFICATION AND NOTES ON THE STATUS OF *CASTILLEJA TAPEINOCLADA* (OROBANCHACEAE)

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ABSTRACT

A neotype is designated for *Castilleja tapeinoclada* Loes., due to the destruction of original material in Berlin during World War II and the ambiguous nature of the original typification. Synonymy and a discussion of the status of this Guatemalan endemic species are also provided.

In 1903, Theodor Loesener of the Botanic Garden and Botanical Museum Berlin-Dahlem (B) described in his serial, Plantae Selerianae, several closely related taxa in the genus *Castilleja*, based on specimens obtained by one of the museum's field botanists, Eduard Georg Seler, in the mountainous regions of Guatemala in Central America. Loesener described *C. tapeinoclada* Loes. with two named varieties, *C. tapeinoclada* var. *subglabra* Loes. and *C. tapeinoclada* var. *hirta* Loes., as well as another closely similar species, *C. katakyptusa* Loes. Each of these entities was distinguished by minor differences in herbage pubescence, presence of leaf lobes, and/or relative measurements of the flowers and bracts. Oddly, Loesener designated type collections for the two varietal names, var, *subglaber* (*Seler 2357*) and var. *hirta*, (*Seler 2933*), but made no such designation for *C. tapeinoclada* itself. Presumably, Loesener intended the first-mentioned form, var. *subglaber*, to serve as the equivalent of the species' nominate form, but this is conjectural and the typification of the species names remains ambiguous. *Castilleja katakyptusa* was described as monospecific, and a type collection was designated (*Seler 2750*).

A few years later, Alice Eastwood (1909) published her comprehensive revision of *Castilleja* in Mexico and Central America, based largely on her studies at the Gray Herbarium (GH). Evidently, Eastwood saw none of the material from Seler's collections, and in her treatments of *Castilleja tapeinoclada* and *C. katakyptusa*, she simply quoted directly from Loesener's paper, without further comment or any citation of specimens seen by her. She accepted all of Loesener's names and made no further comments on their typifications. I have confirmed that no type material from Seler's collections is present at GH or at any of the other herbaria now housed at Harvard University (Walter Kittridge, pers. comm. 2005).

In their treatment of Scrophulariaceae in the Flora of Guatemala, Standley and Williams (1973), reduced var. *subglabra* and var. *hirta*, as well as the closely related *Castilleja katakyptusa*, to synonymy under *C. tapeinoclada*, but they made no further comment on its typification, simply repeating Loesener's typification of his two named varieties in the synonymy. Standley and Williams' interpretation of the Loesener's taxa stands today, and my herbarium studies of specimens from throughout the range of *C. tapeinoclada* confirm that the variants distinguished by Loesener are not geographically or ecologically consistent and likely represent random morphological variations commonly found in many *Castilleja* species.

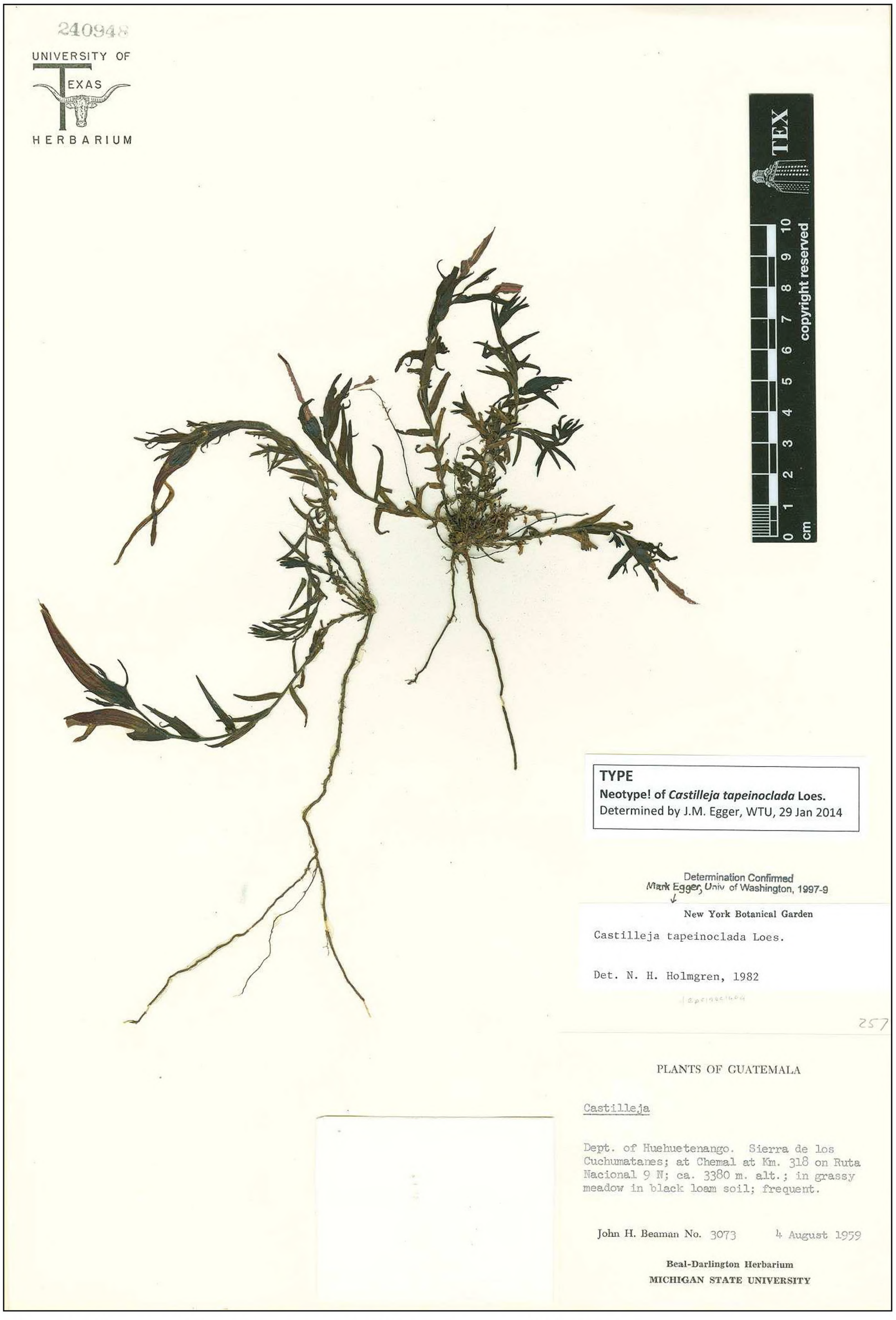
Figure 1. *Castilleja tapeinoclada*, flowers and bracts. Photo by Fred Muller, Sierra de los Cuchumatanes, Depto. Huehuetenango, Guatemala, 15 May 2011.

Figure 2. *Castilleja tapeinoclada*, cluster of plants. Photo by Fred Muller, Sierra de los Cuchumatanes, Depto. Huehuetenango, Guatemala, 25 May 2013.

In addition to the ambiguous nature of the typification of *Castilleja tapeinoclada* addressed above, it also appears that there are no extant specimens of any of the relevant Seler collections cited by Loesener, as Seler's primary collections were destroyed in the allied bombing of Berlin in World War II (C. Oberprieler at B, pers. comm., 2003; Harvard University Herbaria Botanist Database). Although some duplicates of Seler's collections are extant, my extensive efforts to locate any of the specimens designated by Loesener in all herbaria known to house at least some Seler collections (A, CAS, DS, F, GH, K, MEXU, MO, NY, US) have been completely unsuccessful. Internet searches of collection databases and type registries have proved equally fruitless. Finally, the three Seler type collections associated with *C. tapeinoclada* do not appear to be among the historical type images obtained by J.F. Macbride from European herbaria and now housed at F.

In order to provide an unambiguous type collection for *Castilleja tapeinoclada* for the *Castilleja* treatment in a forthcoming volume of the Flora Mesoamericana, the following neotypification is proposed, based on a gathering that is typical of individuals of this species, originates from the general region of the original type collections, contains ample plant material, and is distributed to several major herbaria.

CASTILLEJA TAPEINOCLADA Loes., Bull. Herb. Boiss., ser. 2, 3: 285. 1903. **NEOTYPE** (here designated): **Guatemala**. **Dept. Huehuetenango**. Sierra de los Cuchumatanes, at Chemal at km 318 on Ruta Nac. 9N, frequent in grassy meadow in black loam soil, ca. 3380 m, 4 Aug 1959, *J.H. Beaman 3073* (TEX!; isoneotypes: UC!, US!). Figure 3.


240948
UNIVERSITY OF
TEXAS
HERBARIUM
TEX
copyright reserved
0 1 2 3 4 5 6 7 8 9 10
cm
TYPE
Neotype! of Castilleja tapeinoclada Loes.
Determined by J.M. Egger, WTU, 29 Jan 2014
Determination Confirmed
Mark Egger, Univ of Washington, 1997-9
New York Botanical Garden
Castilleja tapeinoclada Loes.
Det. N. H. Holmgren, 1982
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PLANTS OF GUATEMALA
Castilleja
Dept. of Huehuetenango. Sierra de los Cuchumatanes; at Chemal at Km. 318 on Ruta Nacional 9 N; ca. 3380 m. alt.; in grassy meadow in black loam soil; frequent.
John H. Beaman No. 3073 4 August 1959
Beal-Darlington Herbarium
MICHIGAN STATE UNIVERSITY

Figure 3. Neotype of *Castilleja tapeinoclada* Loes., *Beaman 3073* (TEX).

Castilleja tapeinoclada Loes. var. *subglabra* Loes., Bull. Herb. Boiss., ser. 2, 3: 285. 1903. **TYPE: Guatemala. Dept. Quezaltenango** [= Quetzaltenango]. In pratis alpinis supra Totonicapam [=Totonicapan] in 3000 m altitude, Sep [1896], *E.G. Seler 2357* (holotype: B, apparently destroyed).

Castilleja tapeinoclada Loes. var. *hirta* Loes., Bull. Herb. Boiss., ser. 2, 3: 285, 1903. **TYPE: Guatemala. Dept. Quezaltenango** [= Quetzaltenango]. In pratis alpinis ad Zihá in 2840 m altitude, Jun [1896], *E.G. Seler 2933* (holotype: B, apparently destroyed).

Castilleja katakyptusa Loes., Bull. Herb. Boiss., ser. 2, 3: 286. 1903. **TYPE: Guatemala. Dept. Huehuetenango**. In pratis et silvestribus in jugo montium inter Todos los Santos et Chiantla in 3000 m altitude, Sep [1896], *E.G. Seler 2750* (holotype: B, apparently destroyed).

Castilleja tapeinoclada is an uncommon to locally abundant endemic of high elevation meadows and often heavily grazed pastures in the highlands of western Guatemala from 2,700-4,000 meters elevation. In the Flora of Guatemala (op. cit.), Standley and Williams described it as "occasional," but recent observers (e.g. Fred Muller, pers. comm. 2014) indicate that it is quite common, forming large, conspicuously colorful displays in at least some portions of the Sierra de los Cuchumatanes (Figs. 1 and 2). It is unknown if this discrepancy indicates actual population increases in recent decades, but this species seems to do well on heavily grazed lands, perhaps benefiting from the reduction in competition from more palatable plants. This abundance on grazed pastures is noted on several herbarium collection labels and by local observers. *Castilleja tapeinoclada* has been collected in flower during all months from mid-May to early January in the Departments of Chimaltenango, Huehuetenango, San Marcos, Quetzaltenango, Solala, and Totonicapan.

ACKNOWLEDGEMENTS

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